

DIVISION III

PLANETARY SYSTEM SCIENCES

SCIENCES DES SYSTÈMES PLANÉTAIRES

Division III gathers astronomers engaged in the study of a comprehensive range of phenomena in the solar system and its bodies, from the major planets via comets to meteorites and interplanetary dust.

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DIVISION III COMMISSIONS

Commission 15

Physical Study of Comets and Minor Planets

Commission 16

Physical Study of Planets and Satellites

Commission 20

Positions and Motions of Minor Planets, Comets
and Satellites

Commission 21

Light of the Night Sky

Commission 22

Meteors, Meteorites and Interplanetary Dust

Commission 51

Bioastronomy

DIVISION III WORKING GROUPS

Division III Service

Minor Planet Center

Division III WG

Committee on Small Bodies Nomenclature

Division III WG

Planetary System Nomenclature

DIVISION III INTER-DIVISION WORKING GROUPS

Division III-I WG

Cartographic Coordinates and Rotational
Elements

Division III-I WG

Natural Satellites (formerly Div.III- C20 WG)

Division III-I WG

Near Earth Objects

DIVISION III COMMISSION WORKING GROUPS

Div.III/Comm.15 WG

Physical Study of Comets

Div.III/Comm.15 WG

Physical Study of Minor Planets

Div.III/Comm.20 WG

Motions of Comets

Div.III/Comm.20 WG

Distant Objects

Div.III/Comm.22 WG

Professional-Amateur Cooperation in Meteors

Div.III/Comm.22 WG

Task Group, Meteor Shower Nomenclature

PROCEEDINGS BUSINESS MEETINGS on 18 and 22 August 2006**1. Introduction**

This report outlines the discussions and conclusions reached at Division III business meetings during the IAU XXVI General Assembly. Five meetings were held in total, with one of them being devoted entirely to a discussion of the definition of a planet. We do not give an account of this meeting here since reports of it have been widely circulated.

2. Business Meeting, Friday 18 August 2006, 11:00 hr

Division President, Iwan Williams, opened the meeting by welcoming all members to what was going to be an exciting series of meetings.

The minutes of the last meeting of the Division, held during the General Assembly in Sydney, that had been circulated were accepted with correction that the Minor Planets Management Committee did not report to Division III in the period 2003-2006.

The President informed the meeting that a memorandum of agreement between the Smithsonian Astrophysical Institution and the IAU regarding the governance and running of the Minor Planet Center (MPC) had now been signed. According to this, a Minor Planet Committee is formed which reports to and is elected by Division III. Its role is to advise and instruct the Minor Planet Center on its day-to-day operations, and as a way for the MPC to communicate with Division III.

2.1. Discussion on the future structure within the Division

Under the present IAU rules, all Commissions are appointed for six years and Working Groups for three years. They then cease to exist unless a case is made for their continuation. The Division Board and Commission Organizing Committees had been discussing future organization over the last triennium and Williams gave a summary of the conclusions. All the recommendations of Division III have been accepted by the Executive Committee (EC). These were:

- Commission 16 continues unaltered for another six years.
- Commission 51 changes its name to *Bioastronomy* and continues for another six years.
- Commission 15 and 20 are renewed for three years each and are encouraged to discuss with each other whether they should then join as a single commission. The default position is that they will combine after three years unless they make a case to the contrary.
- Commission 21 and 22 are renewed for three years and strongly encouraged to plan on merging as one commission by 2009.
- The Working Group on Extrasolar Planets (WG-ESP) becomes a Commission on Extra-solar Planets.
- The Working Group on Cartographic Coordinates and Rotational Elements (WGCCRE) was elevated to a commission by the EC at the recommendation of Division I. The reasons for this were not entirely clear, and there would be further discussion on this issue (it is reported later that this will indeed continue as a Working Group of both Divisions).
- Much of the current remit of Working Group on Near Earth Asteroids (WGNEA) has been taken over by a new working group of the EC so that this Division Working group is discontinued.
- A discussion on whether a replacement structure on NEOs should be formed under Commissions 15 or 20 followed. Further discussion was left for the Commissions in question.
- The Working Group on Planetary System Nomenclature (WG-PSN) will continue.
- The Committee on Small Body Nomenclature (CSBN) will continue.
- There was a request from the Working Group on Natural Planetary Satellites (WG-NPS), currently a WG of Commission 20, to become a joint WG of Division I and Division III (it is also reported later that this was accepted by the EC).

Williams pointed out that streamlining of the Division was desirable. If the Board of the Division included all current presidents of the Commissions and Working Groups and immediate past presidents, this already more than fills up the canonical 12 places.

2.2. Reports from Working Groups

Tichá gave the report of the CSBN: - In the past triennium, 2511 minor planets, 674 comets, and 4 satellites of minor planets have been named. Special note was taken of the minor planets

named for the crew of the lost Columbia shuttle, minor planets numbered from 51823 to 51829; the interesting solar system bodies Sedna and Apophis (the latter an NEO which will make a close approach to Earth in 2029) and Romulus and Remus, moons of minor planet Sylvia, making the first known triple minor planet.

- The 5th edition of *The Dictionary of Minor Planet Names* edited by Lutz Schmael, along with an addendum, has been published. Spahr, Marsden, Fernández, and Williams discussed the issue of attribution for the suggestion of names, particularly for Centaurs. Centaurs are named for centaurs in classical literature; there are very limited number of names (as with Trojans) and any on that list not yet used are appropriate. The attribution of the naming of a particular Centaur with a name from this list by an astrologer reflects the fact that anyone is allowed to propose from this list of names.

Archinal gave a report from the Working Group on Cartography Coordinates and Rotational Elements:

- This Working Group is a joint working group of an organization external to IAU (Geodesy). Changes are under consideration by the working group for the Sun, Moon, Mars, and Saturn, and significant advances have occurred in the coordinates of imaged minor planets and the newly discovered or imaged satellites. A final report should be completed and published by the end of the calendar year.

Morrison gave a brief report from Working Group on Near Earth Asteroids:

- As its role as a Division Working Group is completed and much of the time was spent in discussions regarding the new structure.

Boss gave the report from the Working Group on Extrasolar Planets:

- The remit of the current working group was narrowly defined, namely to define and maintain a list of extrasolar planets. This has been done for the past six years, using the relatively strenuous criterion that the discovery must be published in a refereed journal. Approximately 170 such bodies have been confirmed so far, the majority (approximately 150) from radial velocity measurements on their stars but also including others discovered by pulsar timings, transits, and microlensing. Relatively small mass objects are beginning to be found, including a 5.5 Earth mass (with large uncertainty) being the smallest suggested. In addition, there are two possible planetary mass objects around brown dwarfs; one case is a possibly directly detected object, the other an object that has an uncertain mass (1 to 42 Jupiter masses) and thus the system could actually be a binary brown dwarf.

- Now that there is to be a commission on the study of extrasolar planets, it is expected that a subset of this commission, either a committee or subcommittee, will be needed to maintain this list. In addition, the commission will need to work out how to coordinate its work with other commissions (such as Commission 51) and other Divisions of the IAU.

- The nomenclature for such objects has been debated 'to a standstill' with the competing suggestions either to use new unique names, or continue to use the binary star terminology with lower case letters given in order the planets are discovered. The latter becomes unwieldy when the star itself is not concisely named (which happens especially with planets found during transit searches). There is no consensus. Pet names can be used to talk to the press but these do not have an official IAU designation.

- In response to questions, Boss noted that there is at least one possible binary planet (a 7 Jupiter mass object in orbit around a 14 Jupiter Mass object, which within errors might be planetary), and that in the future a consistent definition will be needed to classify such. It is also to be noted that several dozen stars are known to have more than one planet, with one having at least four planets.

2.3. *Election of next Division III president*

Following the general rule that the vice-president becomes the next president, Ted Howell was confirmed by acclamation as the next president of Division III.

2.4. *Other business*

Harris noted that the upcoming definition of a planet might have implications for the organization of committees responsible for planet and minor planet nomenclature, and both the WG-PSN and CSBN agreed to discuss different possibilities (including creating an umbrella committee, or having the CSBN be subordinated to the WG-PSN) at their respective Working Group and Committee meetings.

3. Business Meeting, Friday 18 August 2006, 14:00 hr

This session of the Division had specially been reserved for the a discussion of the proposed definition of a planet by members of the Division.

There was a turnout of several hundred members which included the President, President-Elect, designated future President-Elect of the IAU as well as several past or present General Secretaries. Williams remarked in his opening comments that this must clearly be a record for any Division business meeting indicating the wide-spread interest in the topic. There was a lively discussion that has been widely report, and no attempt at reproducing this is given here. However, it should be noted that an alternative resolution to that from the EC and published earlier, emerged from this meeting (and essentially carried at the Final general Assembly)

4. Business Meeting, Friday 18 August 2006, 16:00 hr

The president, Williams, open the session by reminding who those gathered that the main purpose of this session was to discuss priority concerning discoveries of small solar system objects. Their numbers are expected to increase dramatically within the next three years as the next generation of automated surveys come on line.

4.1. *A proposal for a definition proposed by Milani*

Milani explained that his proposal was an attempt to be fair to those who not only discover these objects but provide sufficient follow-up observations to produce a reliable orbit, while at the same time allowing individuals outside the automated programs to be given credit.

A wide ranging discussion following this proposal pointing out the desirability for simplicity, ability to deal with special cases, the encouragement of amateurs, and the need to guard against those who might either prematurely announce discoveries in the hopes that they were correct as opposed to those who keep discoveries secret until full orbits can be established, thus preventing others from doing useful science on those objects.

It was decided that the incoming Division president will discuss the matter with WG-PSN and CSBN and come to a conclusion which will then go to the Division Board for approval.

4.2. *Planets and Dwarf Planets*

Noll began a discussion of how the newly designated planets or dwarf planets are to be named. After significant discussion of the possibilities, Williams decreed that this should properly be held to the next meeting of the Division, on Tuesday, so that this discussion could be announced to the wider membership- given them the opportunity to contribute.

5. Business Meeting, Tuesday 22 August 2006, 14:00 hr

Williams opened the meeting by pointing out that this session should be devoted essential to business, and not be diverted to discuss planets other than the specific discussion initiated by Noll.

5.1. *Elections for 2006-2009*

Following an election amongst the outgoing Board members held by e-mail, the Division confirmed by acclamation the nomination of Karen Meech, the current president of Commission 51, as the incoming vice-president of the Division, to become president in three years time.

By the IAU rules, Commission presidents are appointed by Division. Following the recommendations of the Commissions, the following new presidents were appointed: Commission 15: Huebner; Commission 16: Courtin; Commission 20: Fernández; Commission 21: Witt; Commission 22: Spurný; Commission 51: Boss.

Major was a likely president for the newly established commission on extrasolar planets, but this will need to be discussed by the Commission itself.

The following chairs of Committees and Working Groups were appointed:
WG on Coordinates and Rotation: Archinal.

(Williams stated that he has written to the General Secretary, and will present to the EC that Division III believes the WG-CCRE was elevated to a commission in error and so it was dealt with here on that assumption that it is a Working Group).

CBSN: Tichá.

WG-PSN: Schultz.

5.2. *The Division board*

One issue for consideration was that the IAU rules say that such Boards normally will have 8-12 members. However, Division III has seen the need to exceed 12 members, given the large number of commissions and regular officers.

Of the outgoing commission presidents, only Gustafson and Valsecchi expressed a willingness to serve, the others are already on board by virtue of holding other offices, or have declined to serve. It was proposed by A'Hearn that two people who have not held other major offices within the Division in the last three years should be elected. This was accepted, which generates a board of 15 members.

Nominations were solicited with an eye for both geographical and scientific balance. Watanabe, Marov, Schulz, and Lévassieur-Regourd were proposed. Rather than choosing only two, Powell asked that all four be accepted, as all four are needed for balance. The Division accepted this.

Thus the new Division III Board is: Edward L. G. Powell (USA, president), Karen J. Meech (USA, vice-president), Iwan P. Williams (past president, UK), Guy J. Consolmagno (secretary, Vatican City State), Board: Walter F. Huebner (USA, C15 president), Régis Courtin (France, C16 president), Julio Fernández (Uruguay, C20 president), Adolf N. Witt (USA, C21 president), Pavel Spurný (Czech Republic, C22 president), Alan P. Boss (USA, C51 president), Michel Mayor (Switzerland, C53 president), Bo A.S. Gustafson (USA, outgoing C21 president), Giovanni B. Valsecchi (Italy, outgoing C20 president), Anny-Chantal Lévassieur-Regourd (France, additional), Mikhail Ya. Marov (Russia, additional), Rita M. Schulz (Germany, additional), and Jun-Ichi Watanabe (Japan, additional),

5.3. *Re-organizing Working Groups*

A suggestion had been made that there should be one Working Group to deal with naming. This could have sub-groups dealing with specific object types.

A straw vote between discussing a change or continuing under the present system led to a vote of 19-16 in favor of no change.

Considering the role that both naming groups will have in the naming of the yet-to-be-determined planetary objects, it was agreed that the two committees involved would discuss the matter among themselves. Their meetings, to follow on Wednesday, are open to all members, although voting will be only by the members of the working group or committee.

6. Business Meeting, Thursday 24 August 2006, 11:00 hr

The main purpose of this session was to wind up administrative items, including reports from WGs and Commissions that had not previously reported or that had new items to report.

6.1. *Update on Working Group and Commission status*

Williams reported that on August 23 the EC had accepted that the WG on Cartography and Rotational Elements should stay as a WG, and that the WG on Satellites should become a joint WG of Divisions I and III.

6.2. *Outstanding reports*

WG-PSN given by Aksnes

The WG held a workshop in Norway in September 2005 to revise its guidelines, as reported in IAU Transactions. With the exception of this face-to-face meeting, most of its business was normally done by e-mails.

There were 228 names of surface features approved during triennium, and 24 new satellite names. Formal approval of lists by the Division followed, by acclamation.

6.3. *The matter of Provisional Names*

It was proposed that we should cease to use 'provisional' names since this does not serve a useful purpose but creates extra work for those maintaining the name database. This was agreed to (bringing WGPSN in line with CSBN practice).

6.4. *Minor changes to the Terms of Reference for WG-PSN*

Minor but necessary changes from 2000 version were approved, including the change from a 'president' to a 'chairperson'. It was noted that outside 'consultants' are still needed for the WG to function. Though this class of membership is no longer recognized by the IAU, it was noted that since consultant no longer had an official IAU meaning the term could continue to be used in the ToR as a common descriptive term for these experts. It was also found that task groups of the WG in several cases needed up to seven members, rather than the six originally allowed. In section 4, the words 'major and minor planets' becomes 'planets', and 'comets' becomes 'small solar system objects' in anticipation of likely changes in the definition of a planet by the General Assembly.

Concerning the issue of 'provisional' names, it was proposed that section 4b would be revised to read: "Names will be made available quarterly in an official web site for public review. Any objections to these names based on significant substantive problems must be forwarded in writing or email to the Div III president within three months of the placing of these names on the website. Valid objections do not include personal preferences of the discoverers or other individuals." The results of such appeals will be applied as before by the still-standing terms of section 4c.

It was noted that, given the uncertain status of the definition of a planet, references to dwarf planets, etc. would be premature. The WG-PSN along with the CSBN recommend in the particular case of 2003 UB313, the discoverer will be solicited for an appropriate name, which will be given jointly to the CSBN and WG-PSN for approval; the Division III board and then the EC will have the final say on any name. Bowell noted that this removes a level of bureaucracy and has more people look at it. There will be pressure to name it clearly; the hope is that a name can be approved within one month.

The issue of approaching the discoverer, rather than soliciting names from the public, was accepted unanimously.

6.5. *CSBN matters*

New membership of the committee includes Bowell (ex-officio, Division III president), Schulz (ex-officio, WG-PSN chair) and the addition of new members Syuichi Nakano and Keith Noll. In addition it was agreed to publish both names and citations of names of satellites of minor planets in the MPCs. The committee continues to search for the best way of limiting the naming process, and to concentrate on a smaller number of meaningful names/important bodies, rather than attempting to approve 100,000 new minor planet names. It is also searching for a way to provide a free website containing names and citations; this needs resolving copyright questions with the IAU and Springer, who publish the Dictionary of Minor Planet Names.

6.6. *Commission on Extrasolar Planets*

Williams reported that he had chaired a brief meeting at 12.00 hr to which 25 people showed up who were interested in joining the new Commission. It was agreed that all interested people should e-mails Boss.

6.7. *Other brief statements*

Commission 16: The question was raised if the physical study of Dwarf Planets come under Commission 15 or 16? Either 15 loses Ceres, or 16 loses Pluto. Williams notes that, in any event, the Division eventually will have to deal with the new situation, but that will depend on what passes at the General Assembly.

Commission 21: Progress is being made toward eventual combination with Commission 22; this will be discussed further at a scientific meeting on meteors to be held next year in Spain.

Commission 22 had adopted a formal process for naming meteor showers, and defined a task group to define how individual showers are defined, to come up official names for the next triennium. The Division agreed to this proposal without dissent.

6.8. *Any other business*

The upcoming vote on the definition of a planet at the General Assembly was discussed, and Williams agreed to present the concerns of the Division to the Executive Committee.

Finally, Bowell proposed two votes of thanks. One was to Williams for his stewardship during these tumultuous three years, who replied that “this tumult is why I attend IAUs, I think it’s a lot of fun. We’ve been described in bad terms because we’re contentious but that’s why we enjoy what we do.”

The second person to thank was Brian Marsden who after 28 years at the MPC is to become director emeritus. He noted that Marsden had steered that organization amazingly; from a time when there were only 2,000 numbered asteroids when to 134,000 now, an enormous task. He also noted that the catalog or orbits has gone from 3,000 to 300,000, and we may see a further increase by a factor of 100 in the next ten years.

Iwan P. Williams
president of the Division